

**METAL PROGRAMMABLE PHASE-LOCKED LOOP****ABSTRACT OF THE DISCLOSURE**

A phase-locked loop within an integrated circuit  
5 assembly is provided. The phase-locked loop includes  
a plurality of subcells of semiconductor devices  
arranged in a base layer pattern on base layers of  
the integrated circuit assembly. One or more metal  
layers are formed over and interconnect the plurality  
10 of semiconductor devices in a metallization pattern.  
The phase-locked loop has an output frequency range  
that is changeable with a change to the metallization  
pattern without a corresponding change to the base  
layer pattern.